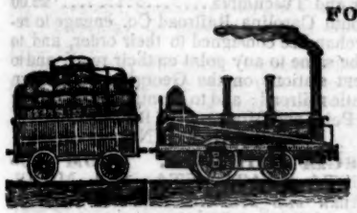
Cuyahoga Steam Furnace

AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY, AND MINES.



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SECOND QUARTO SERIES, VOL. II., No. 28.] SATURDAY, JULY 11, 1846. [WHOLE No. 525, VOL. XIX.

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 6, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 4 p.m., and Providence at 8 a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m. 12½ m., 3½ p.m., and 6½ p.m. Leave Dedham at 7 a.m. and 9½ a.m. and 2½ and 5½ p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7·20 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES Connecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J. W. STOWELL, Sup't.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Summer Arrangement, 1846.

On and after April 13, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 4½ p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 4½ and 6 p.m.

Boston for Reading at 7½, 9, and 11½ a.m., 2½, 4½, 6 and 8 p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 6½, 8½, and 11 a.m., and 4 and 6½ p.m.

Reading for Boston at 6½, 7½ and 9½ a.m., 12 m., 1½, 5 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

CHAS. MINOT, *Sup't.*

TROY AND GREENBUSH RAILROAD. Spring Arrangement. Trains will be run on this Road as follows, until further notice, Sundays excepted.

Leave Troy at	6½	A.M.	Leave Albany at	7	A.M.
" "	7½	"	" "	8	"
" "	8½	"	" "	9	"
" "	9½	"	" "	10	"
" "	10½	"	" "	11	"
" "	11½	"	" "	12	M.
" "	1	P.M.	" "	1½	P.M.
" "	2	"	" "	2½	"
" "	3	"	" "	3½	"
" "	4	"	" "	4½	"
" "	5	"	" "	5½	"
" "	5½	"	" "	6	"
" "	6½	"	" "	7	"

☞ The 6½ a.m. and 2 o'clock p.m. runs from Troy, to Boston runs.

The 12 m. and 6 o'clock p.m. trains from Boston runs.

☞ Passengers from Albany will leave in the Boston Ferry Boat at the foot of Maiden Lane, which starts promptly at the time above advertised.

Passengers will be taken and left at the principal Hotels in River Street, in Troy, and at the Nail Works and Bath Ferry.

L. R. SARGENT, Superintendent.

Troy, April 1st, 1846. 14 1y

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—

Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—

Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts.

H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.

On and after Friday, May 1st, 1846, the cars will run as follows:

Leave City Hall for Yorkville, Harlem and Morrianna, at 7, 8, 9, 10 and 11 a. m., and at 1, 2, 3 30, 4 30, 5, 6, and 6 30 p. m.

Leave City Hall for Fordham and Williams' Bridge, at 7, 10 and 11 a. m., and at 2, 3 30, 5, and 6 30 p. m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners and White Plains, at 7 and 10 a. m., and at 2 and 5 p. m.

Leave Harlem and Yorkville, at 7 10, 8 10, 9, 10, 11 10 a. m., and at 12 40, 2, 3 10, 5 10, 5 30, 6 10, and 7 p. m.

Leave Williams' Bridge and Fordham, at 6 45, 7 45, and 10 45 a. m., and at 12 15, 2 45, 4 45, and 5 45 p. m.

Leave White Plains, at 7 and 10 a. m., and at 3 and 5 p. m.

The freight train will leave the City Hall at 1 o'clock, p. m., and leave White Plains at 1 o'clock in the morning.

On Sundays, the White Plains train will leave the City Hall at 7 a. m. and 5 30 p. m.; will leave White Plains at 7 a. m. and 6 p. m.

On Sundays, the Harlem and Williams' Bridge trains will be regulated according to the state of the weather. 18

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.

1846. Spring Arrangement. 1846

Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston 7½ p. m. and 4 p. m. for Albany.
Albany 6½ " and 2½ " for Boston.
Springfield 7 " and 1 " for Albany.
Springfield 7 " and 1½ " for Boston.

Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, $5; fare from Springfield to Boston or Albany, $2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing landing plrces upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line.

The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandize trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintent and Engineer.

Western Railroad Office, Springfield, April 1, 1846. 14 1y

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:

Leaves Baltimore at 9 a.m., and arrives at 6½ p.m. Arrives at York at 12½ p.m., and leaves for Columbia at 1½ p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York $2. Wrightsville $2 50, and Columbia $2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, $9 and $10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p.m. for Cockeysville, Parkton, Green Springs, Owings' Miils, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to

1y14 STOCTON & FALLS, Agents.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., *Agents.*

Corner of Cedar and Greenwich Sts. 48 1y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, *Agent.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33½ "
" Molasses, per hogshead $9·50; salt per bus.20 "
" Ploughs and cornshellers, each.....75 "

Passengers $10·50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, $7.

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845 *44 1y

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....$5 00 per hhd.
On molasses and oil.....$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
40 Gen'l. Sup't. Transportation.

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y17

LITTLE MIAMI RAILROAD.—1846.—Summer Arrangement.

Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p.m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every $500 in value above that amount.

W. H. CLEMENT,
19 Superintendent.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works beingexten sive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1¼ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descripions.†

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.

G. A. NICOLLS,
ja45 *Reading, Pa.*

RAILROAD SCALES.—THE ATTENtion of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers or fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

MARAMEC IRON WORKS FOR SALE. By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on *MONDAY, the 2nd day of November next*, the above named valuable IRON WORKS—together with **8,000** ACRES OF LAND, more or less, on which there are several *valuable and productive Farms* open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of **1** BLAST FURNACE; **1** AIR FURNACE; **1** REFINING FORGE, with large Hammer for making Blooms and Anchonies;
2 CHEFFERY FORGES for Drawing Bar Iron;
1 ROLLING MILL for Rolling Blooms into Bars and Plates;
1 SAW AND **1** GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detatched tracts, comprized in the above quantity, were selected for the advantages they possess;

183½ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1½ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1½ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent.
St. Louis, June 6, 1846.

☞ The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) aed Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and *mark price on first paper.* 18t25

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus,
Glendon,
Spring Mill and
Valley,
} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

TO RAILROAD COMPANIES AND MANufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire,
Peter Cooper,
Murdock, Leavirt & Co.
} New York.
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr.
Colwell & Co.
} Philadelphia, Pa.
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co.
Eagle Screw Co.
} Provicence, R. I.
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark, N. J.
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25,000 to 30,000 made weekly. 35 1y

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

Vicksburgh, Miss., March 9th, 1846.

Certificate from Judge Battaile, of Benton, Mississippi.

In October last I purchased one of Rich's Improved Salamander Safes, which was in the fire at the burning of my law office, and several adjoining buildings in this place, on the 17th of November last, at about half-past one o'clock A. M. of that day. The building was entirely consumed; and I take pleasure in stating that my papers in said safe were preserved without injury. A receipt book which was in said safe, had the glue drawn out of its leather back by the heat, and the back broken; but the leaves of the book, and the writing thereon, were entirely uninjured; and some of the writing which was of blue ink, was also left wholly uneffaced and not in the least faded. Said safe was by the fire heated perfectly red hot, and I do not hesitate to say, that said safe is a perfect security against fire. But the safe tumbled over during the fire, and being heated red hot, the outer sheeting of the door became pressed in, and the bolts of the lock bent, so that it could not be unlocked, and I had to have it broken open. JOHN BATTAILE.

Benton, Miss., December 27, 1845.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. (Signed,)

RICHARDS & CRONKHITE.

New York, 21st July, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from $50 to $500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge, 76 Magazine street, New Orleans.

Also by Lewis M. Hatch, 120 Meeting street Charleston, S. C.

16 tf

CUSHMAN'S COMPOUND IRON RAILS. etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of *letters patent* to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of *improving* their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having in use flat bar rails are particularly interested, as such are permanently available by the plan.

W. Mc. C. CUSHMAN, *Civil Engineer*,
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applicaitons must be post paid.

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by A. & G. RALSTON

Mar. 20tf 4 South Front St., Philadelphia.

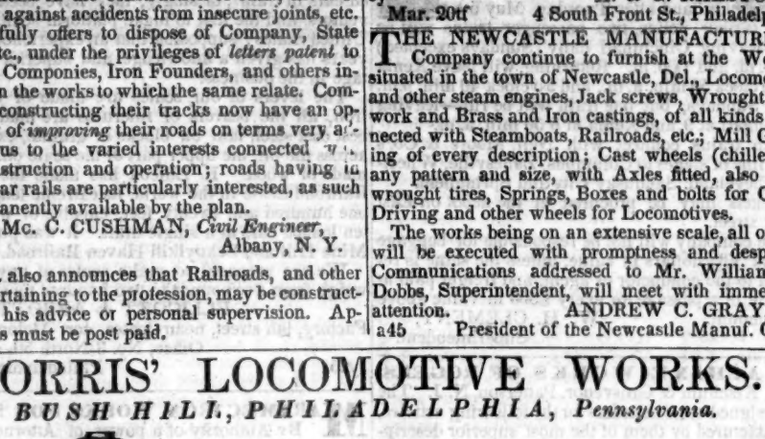
THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,

a45 President of the Newcastle Manuf. Co.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15	inches	Diameter of	Cylinder,	× 20	inches Stroke.
"	2,	14	"	"	"	× 24	" "
"	3,	14½	"	"	"	× 20	" "
"	4,	12½	"	"	"	× 20	" "
"	5,	11½	"	"	"	× 20	" "
"	6,	10½	"	"	"	× 18	" "

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS

Atlantic and St. Lawrence Railroad.

We find in the Portland Advertiser of 23rd inst., the following remarks in relation to this road; and we congratulate the people of Portland on the flattering prospects of the work. They are certainly entitled to much credit for their public spirit and enterprize. They will beyond question, reap a rich return for their efforts when the road shall be completed. The editor says:

"We learn that the directors of the Atlantic and St. Lawrence railroad, have located the road from Fort Burroughs (Turner's ship-yard,) to the east side of Royal's river, in north Yarmouth, passing around upon the east side of Presumpscut bay, and crossing Presumpscut river immediately below the covered bridge. Proposals for contracts will be received for the grading, masoning and bridging of the first division, at the engineer's office, till the 27th inst.

"An act of the legislature has just been procured authorizing the company to take the necessary lands and flats for depots, etc., from the foot of India street on the east side, to Munjoy's Hill, on the same terms as they took the road way, upon the appraisal of the county commissioners.

"The procurement of this act has enabled the directors to act promptly upon the difficult and much debated question of the location of the depot upon Fore river.

"We have examined the plans, etc., at the engineer's office, and are struck with the remarkable facilities, and ample accommodations for business which are offered at the terminus of the road. From India street to the easterly point of Munjoys Hill a distance of half a mile or more, deep water is found, where at a short distance from the shore the largest vessels may lie at low water. Here may be formed the most magnificent quay ever yet made, by the erection of a sea wall sufficiently far into the channel of Fore river, to give ample space for as many parallel tracks inside, as the business of the road may require.

"It is worthy any one's attention to examine the plans, surveys, specifications, etc., now at the engineer's office. The engineer department has certainly done credit to itself and to the company. For skill and ability in his profession, as well as for energy and judgement in all his measures, Mr. Morton, the chief engineer, has already gained a high reputation among us, and the importance of securing at the outset of the work, a corps of engineers having practical skill and abundant experience, is now seen to be the truest economy.

"Mr. Morton returned from Montreal the present week. It will be gratifying to all to know that the work is going on at the other end of the line with the same spirit and zeal as here.

"The exploration of the country between Montreal and Sherbrooke, has been finished, and the surveying parties are now making a survey, prior to a final location of some 30 to 50 miles from Montreal. A section will be ready for contract at an early day. The famous article from *Wilmer and Smith's Times* which so '*interested*' our Boston friends, was looked upon as another abortive attempt to injure the road, exciting no other feeling than that of pity or contempt. No other attention was paid to it.

"The line from Portland to North Yarmouth, has been subjected to a most rigid and careful survey, and considering the general aspect of the country is remarkably favorable. It is only a half mile more than an air line with easy curves and grades, in no case exceeding 25 feet to the mile. In performing this work Mr. Morton has had the services of Mr. Noxon as resident engineer who has had great experience in building railroads, and Messrs. Arrowsmith, A. P. Robinson, Eaton, Parsell, Sherrill and Goodwin as assistants. A finer engineering corps, in our opinion, has nowhere been organized.

"We learn that the directors have unanimously voted to break ground on the *fourth* of July.

"The surveys from Royal's river to the Little Androscoggin, we are told are to be in progress as soon as the plans, profiles, estimates and specifications of the first division are completed."

Principles of Railway Management.

Continued from page 408.

Looking to the application of the preceding tables to a few examples, it appears that taking the average cost of construction at £21,000 per mile, and allowing 10 per cent. interest on the capital expended, and assuming also the fixed expenses to be equally divided between the goods and passenger traffic, while a line with a traffic of 90,000 tons per mile per annum should charge on the average per ton per mile 4·76*d.*, a line with a traffic of 150,000 tons per mile per annum (nearly that of the Paris and Orleans railway)could carry with equal profit to the shareholders, at 3*d.* per ton per mile. A line with the traffic of 309,000 tons per mile per annum (about that of the Manchester and Leeds) could carry with equal profit to the shareholders, at 1·74*d.* per ton per mile; while a line with the traffic of 750,000 tons per mile per annum (nearly I believe that of the Liverpool and Manchester) could carry, with equal profit to the shareholders, at the rate of about 1*d.* per ton per mile.

"It has always appeared to me extraordinary, that the main trunk lines of England should hitherto have conveyed so small an amount of merchandize. The Paris and Orleans line, so lately opened throughout its entire length, carried last year, of grain and flour alone, 50,000 tons per mile, being for this one description of goods more than the average tonnage on all description of goods in Belgium, a country pre-eminent as one for transit.

"Referring to the table of the actual charge on the lines in England, I find that the average charge per mile per ton on the London and Birmingham varies from 2·2*d.* to 7·5*d.*; on the Manchester and Leeds, from 4d. to 8*d.*; on the Liverpool and Manchester, from 2·9d. to 5·4*d.* The average charge by the table for the first would be about 1·22*d.*; for the second, 1·74*d.*; for the third, 1·00*d.*; assuming 10 per cent. interest on a cost of £31,000 per mile.

"The extension of the benefits of railway conveyance to all agricultural produce, not having kept pace with their application to other interests, I think it will appear that the high charges contributed to that result. To illustrate this subject, I have prepared tables of the various remunerative prices for the conveyance of cattle, sheep, horses, etc.

"3 fat bullocks weigh on the average 1 ton.

"A fat bullock travels on the average upon a common road, in one day, 15 miles.

"And costs when so travelling, per day, 1*s.* or ·8*d.* per mile.

"5 1-2 lean bullocks weigh, on the average, 1 ton.

"They travel on a common road, on the average, from 15 to 20 miles a day, say 17 miles.

"Their cost varies much, according to the period of the year, but it may be taken at an average of 3*s.* 6*d.* per 100 miles, say 1-2*d.* per mile.

"On the average, there are 4 ordinary horses to 1 ton, travelling from 14 to 20 miles per day, say on an average 17 miles, costing when travelling on a common road, per day, 4*s.*, or say per mile, 2·9*d.*

"20 fat sheep weigh, on the average 1 ton, and fat sheep travel on a common road on the average, 10 to 12 miles a day, say 11 miles, costing per day per score,* 6*d.*, or per mile, about 1-2*d.*

"16 pigs on the average, weigh 1 ton, travel on the common road about 12 miles per day, costing per day per score,* 9*d.*, being per day per score, 3·4*d.*

"With these elements I have prepared the following tables, showing the varying remunerative charges required per head of cattle, etc., according to the total yearly amount of tonnage per mile. and adapted to the various conditions—

"1st, of a per centage on the capital of 5 per cent. and 10 per cent per annum.

"2ndly, of an original cost for construction of £18,000 and of £31,000 per mile.

"It is notorious that hitherto, on the majority of railways terminating in the metropolis or in large towns, the conveyance of cattle, sheep, calves, pigs, etc., for great distances, has been exceedingly small, and thus one of the advantages of railway communication in equalizing the price of provisions is lost.

"The table showing the cost of carriage of this class of traffic, with £31,000 per mile for construction, and 10 per cent. thereon interest, (see table original cost of construction £31,000.)

	Per fat bullock per mile.
Gives a charge for 90,000 tons per mile per annum	1·59*d.*
With a traffic of 150,000 tons (the Paris and Orleans traffic,) of	1·00*d.*
With a traffic of 300,000 tons (that of the Manchester and Leeds,) of	·58*d.*
And with a traffic of 750,000 tons (that of the Liverpool and Manchester,) of	·30*d*

"Now I have stated before that the cost of sending a fat bullock by the common road is 8-10*d.* per mile. If therefore, a railway was to convey fat bullocks at a charge of, say 6-10*d.* per mile, being the remunerating charge for an amount of traffic equal to that of the Manchester and Leeds railway, it would engross to itself all this class of carriage, and hold out a positive inducement to divert the beasts or cattle from other channels by the superior advantages peculiar to railway transit. For it is well known that fat beasts or sheep or pigs lose much of their weight by travelling on the common road.

"Referring to the same table, and taking,

* I have found considerable difficulty in obtaining that which might be considered as a fair average cost per day per score, the prices differing so widely according to season, locality, breed, etc. I would observe therefore, in reference to these two estimates, that, if they be found inapplicable to any particular locality, the tabular results founded on them may easily be modified to suit the exact cost that may be ascertained for the district to which the comparison is to be applied.

as before made out, the cost of a lean bullock at 1-2*d.* per mile, on the common road, we find the turning point at which the railway can with profit convey these, and beat the common road, is when the total traffic is about 200,000 tons per mile per annum.

Table showing the diminution in the cost of carriage per head of cattle, etc., dependent on the increase in the traffic. (*Original cost of construction,* £18,000 *per mile.*)

Allowing interest at the rate of 5 per cent. per annum on the capital.

Average traffic per mile per annum. Tons net.	Cost per mile. Per ton.	Per fat bullock	Per lean bullock.	Per horse	Pr score of fat sheep.	Pr score of pigs,
	d.	*d.*	*d.*	*d.*	*d.*	*d.*
20,000	6·63	2·21	1·21	1·66	6·63	8·27
30,000	4·57	1·52	·83	1·14	4 57	5·71
40,000	3·54	1·18	·64	·88	3·54	4·43
50,000	2·92	·97	·53	·73	2·92	3·65
60,000	2·51	·84	·46	·63	2·51	3·14
70,000	2·21	·74	·40	·55	2·21	2·76
80,000	1·99	·66	·36	·49	1·99	2·49
90,000	1·82	·61	·33	·45	1·82	2·27
100,000	1·69	·56	·31	·42	1·69	2 11
150,000	1·27	·42	·23	·32	1·27	1·59
200,000	1·07	·36	·19	·28	1·07	1·34
300,000	·86	·28	·15	·22	·86	1·08
400,000	·76	·25	·14	·19	·76	·95
500,000	·70	·23	·12	·17	·70	·87
1,000,000	·57	·19	·10	·14	·57	·71

Allowing interest at the rate of 10 per cent. per annum on the capital.

20,000	12·03	4·01	2·19	3·01	12·03	15·04
30,000	8·17	2·72	1·49	2·04	8·17	10·21
40,000	6·24	2·08	1·13	1·56	6·24	7·80
50,000	5·08	1·69	·92	1·27	5·08	6·35
60,000	4·31	1·44	·79	1·07	4·31	5·39
70,000	3·76	1·25	·68	·94	3·76	4·70
80,000	3·34	1·11	·61	·83	3·34	4·17
90,000	3·01	1·00	·55	·75	3·01	3·76
100,000	2·77	·92	·50	·69	2·77	3·46
150,000	1·99	·66	·36	·49	1·99	2·49
200,000	1·61	·54	·29	·40	1·61	2·01
300,000	1·22	·41	·22	·31	1·22	1·53
400,000	1·03	·34	·19	·26	1·03	1·29
500,000	·91	·30	·16	·23	·91	1·14
1,000,000	·68	·23	·12	·17	·68	·85

Original cost of construction, £31,000 *per mile.*

Allowing interest at the rate of 5 per cent. per annum on the capital.

20,000	10·53	3·51	1·91	2·64	10·53	13·16
30,000	7·17	2·72	1·30	1·74	7·17	8·96
40,000	5·49	1·83	1·00	1·37	5·49	6·86
50,000	4·48	1·39	·81	1·12	4·48	5·50
60,000	3·81	1·27	·70	·95	3·81	4·76
70,000	3·33	1·11	·60	·83	3·33	4·17
80,000	2·97	·99	·54	·74	2·97	3·71
90,000	2·69	·89	·49	·66	2·69	3·36
100,000	1·47	·82	·45	·62	2,47	3·09
150,000	1·79	·59	·32	·45	1·79	2·29
200,000	1·46	·48	·27	·36	1·46	1·82
300,000	1·12	·37	·20	·28	1·12	1·40
400,000	·95	·32	·17	·24	·95	1·19
500,000	·85	·28	·15	·21	·85	1·06
1,000,000	·65	·22	·12	·16	·65	·81

Allowing interest at the rate of 10 per cent. per annum on the capital.

20,000	19·83	6·61	3·60	4·96	19·83	24·79
30,000	13·37	4·45	2·43	3·35	13·37	17·81
40,000	10·14	3·38	1·75	2·54	10·14	12·67
50,000	8·20	2·73	1·50	2·05	8·20	10·25
60,000	6·91	2·30	1·26	1·73	6·91	8·64
70,000	5·98	1·99	1·09	1·49	5·98	7·47
80,000	5·29	1·76	·96	1·32	5·29	6·63
90,000	4·76	1·59	·86	1·19	4·76	5·95
100,000	4·32	1·44	·79	1·08	4·32	5·40
150,000	3·00	1·00	·55	·75	3·00	3·75
200,000	2·38	·79	·43	·59	2·38	2·97
300,000	1·74	·58	·31	·43	1·74	2·17
400,000	1·41	·47	·26	·35	1·41	1·76
500,000	1·22	·31	·22	·31	1·22	1·53
1,000,000	·83	·28	·15	·21	·83	1·04

"So with a horse, the cost of which on the common road averages per mile nearly 3*d.*, the turning point in the scale or table is an aggregate goods traffic per mile per annum of about 40,000 tons.

"The following tables bringing in juxta-positon the comparative cost by railway and by the common road for each class of cattle, horses, sheep, etc., enable the reader to find at a glance the aggregate amount of traffic required to produce the turning point at which the railways can convey with profit at rates cheaper than common roads.

"Thus with an original cost of £18,000 per mile, and interest on the capital at 5 per cent the turning point with fat bullocks is at about an aggregate yearly tonnage per m of 65,000 tons; with lean bullocks of 55,000 tons; or with an original cost per mile of £31,000, and interest thereon at the rate of 10 per cent. per annum, the turning point with fat bullocks is at or about an aggregate yearly tonnage per mile of 200,000 tons; with lean bullocks, of about 175,000 tons.

Original cost of construction, £18,000 *per mile.*

Allowing interest at the rate of 5 per cent. per annum.

Average traffic per mile per annum. Tons net.	Fat bullocks, 3 to 1 ton. Cost per mile per head. By railway.	By common road.	Lean bullocks, 5 1-2 to 1 ton. Cost per mile per head. By railway.	By common road.	Horses, 4 to 1 ton. Cost per mile per head. By railway.	By common road.	Sheep, 20 to 1 ton. Cost per mile per score. By railway.	By common road.	Pigs, 16 to 1 ton. Cost per mile per score. By railway.	By common road.
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
20,000	2.21	.....	1·21	.....	1·66	.....	6.63	.....	8·27	.....
30,000	1·52	.....	·83	.....	1·14	.....	4·57	.....	5·71	.....
40,000	1·18	.....	·64	.....	88	.....	3·54	.....	4·43	.....
50,000	·97	.....	·53	.....	·73	.....	2·92	.....	3 65	.....
60,000	·84	.....	·46	.....	·63	.....	2·51	.....	3·14	.....
70,000	·74	.....	·40	.....	·55	.....	2·21	.....	2·76	.....
80,000	·66	8.	·36	·50	·49	2·9	1·99	6·0	2·49	9·0
90,000	·61	.....	·33	.....	·45	.....	1·82	.....	2·27	.....
100,000	·56	.....	·31	.....	·42	.....	1·69	.....	2·11	.....
150,000	·42	.....	·23	.....	·32	.....	1·27	.....	1·59	.....
200,000	·36	.....	·19	.....	·28	.....	1·07	.....	1·34	.....
300,000	·28	.....	·15	.....	·22	.....	·86	.....	1·08	.....
400,000	·25	.....	·14	.....	·19	.....	·76	.....	·95	.....
500,000	·23	.....	·12	.....	·17	.....	·70	.....	·87	.....
1,000,000	·49	.....	·10	.....	·14	.....	·57	.....	·71	.....

Allowing interest at the rate of 10 per cent. per annum.

20,000	4·01	.....	2·19	.....	3·01	.....	12·03	.....	15·08	.....
30,000	2·72	.....	1·49	.....	2·04	.....	8·17	.....	10·21	.....
40,000	2·08	.....	1·13	.....	1·56	.....	6·24	.....	7 80	.....
50,000	1·69	.....	·92	.....	1·27	.....	5·08	.....	6·35	.....
60,000	1·44	.....	·79	.....	1·07	.....	4·31	.....	5·39	.....
70,000	1·25	.....	·68	.....	·94	.....	3·76	.....	4·70	.....
80,000	1·11	.....	·61	.....	·83	.....	3·34	.....	4·17	.....
90,000	1·00	.....	·55	.....	·75	.....	3·01	.....	3·76	.....
100,000	·92	·8	·50	·50	·69	2·9	2·77	6·0	3·46	9·0
150,000	·66	.....	·36	.....	·49	.....	1·99	.....	2·49	.....
200,000	·54	.....	·29	.....	·40	.....	1·61	.....	2·01	.....
300,000	·41	.....	·22	.....	·31	.....	1·22	.....	1·53	.....
400,000	·34	.....	·19	.....	·26	.....	1·03	.....	1·29	.....
500,000	·30	.....	·16	.....	·23	.....	·91	.....	1·14	.....
1,000,000	·23	.....	·12	.....	·17	.....	·68	.....	·85	.....

Original cost of construction, £31,000 *per mile.*

Allowing interest at the rate of 5 per cent. per annum.

20,000	3·51	.....	1·91	.....	2·64	.....	10·53	.....	13·16	.....
30,000	2·72	.....	1·30	.....	1·74	.....	7·17	.....	8·96	.....
40,000	1·83	.....	1·00	.....	1·37	.....	5·19	.....	6·86	.....
50,000	1·39	.....	·81	.....	1·12	.....	4·48	.....	5·50	.....
60,000	1·27	.....	·70	.....	·95	.....	3·81	.....	4·76	.....
70,000	1·11	.....	·60	.....	·83	.....	3·33	.....	4·17	.....
80,000	·99	.....	·54	.....	·74	.....	2·97	.....	3·71	.....
90,000	·89	·8	·49	·50	·66	2·9	2·69	6·0	3·36	9·0
100,000	·84	.....	·45	.....	·62	.....	2·47	.....	3·09	.....
150,000	·59	.....	·32	.....	·45	.....	1·79	.....	2·29	.....
200,000	·48	.....	·27	.....	·36	.....	1·46	.....	1·82	.....
300,000	·37	.....	·20	.....	·28	.....	1·12	.....	1·40	.....
400,000	·32	.....	·17	.....	·24	.....	·95	.....	1·19	.....
500,000	·28	.....	·15	.....	·21	.....	·85	.....	1·06	.....
1,000,000	·22	.....	·12	.....	·16	.....	·65	.....	·81	.....

Allowing interest at the rate of 10 per cent. per annum.

20,000	6·61	.....	3·60	.....	4·96	.....	19·83	.....	24·79	.....
30,000	4·45	.....	2·43	.....	3·35	.....	13·37	.....	17·81	.....
40,000	3·38	.....	1·75	.....	2·54	.....	10·14	.....	12·67	.....
50,000	2·73	.....	1·50	.....	2·05	.....	8·20	.....	10·25	.....
60,000	2·30	.....	1·26	.....	1·73	.....	6·91	.....	8·64	.....
70,000	1·99	.....	1·09	.....	1·49	.....	5·98	.....	7·47	.....
80,000	1·76	.....	·96	.....	1·32	.....	5·29	.....	6·63	.....
90,000	1·59	·8	·86	·5	1·19	2·9	4·76	6·0	5·95	9·0
100,000	1·44	.....	·79	.....	1·08	.....	4·32	.....	5·40	.....
150,000	1·00	.....	·55	.....	·75	.....	3·00	.....	3·75	.....
200,000	·79	.....	·43	.....	·59	.....	2·38	.....	2·97	.....
300,000	·58	.....	·31	.....	·43	.....	1·74	.....	2·17	.....
400,000	·47	.....	·26	.....	·35	.....	1·41	.....	1·76	.....
500,000	·31	.....	·22	.....	·31	.....	1·22	.....	1·53	.....
1,000,000	·28	.....	·15	.....	·21	.....	·83	.....	1·04	.....

"Tables similar to the preceding, prepared with a view to show the comparative cost at which railways and canals could afford to carry various classes of goods, would be exceedingly useful. They would demonstrate that with a sufficient amount of traffic approaching for example, to that of the Liverpool and Manchester, or about that of the Manchester and Leeds railways can convey, with remunerative rates, at fares lower than canals. And when this comparative cheapness is taken into account jointly with the other advantages of speed and regularity in the transit, it becomes manifest that wherever there is much movement in the conveyance of goods, railways must take the lead."

Carriage of Parcels.

"Before leaving this part of the subject, I am desirous to advert to the question of the conveyance of parcels. I had prepared the details of some facts to be submitted to the society, tending to show many practical inconveniences in addition to the drawback of expense, to which might be in part attributed the small amount of traffic obtained by railways in the carriage of parcels. But the following statement, published in a morning paper,* of the 11th inst., by showing an important movement in the right direction, will render the production of some of these statements unnecessary. It is besides more pleasing to record improvements than indicate defects.

"'The Manchester and Leeds railway company's report, presented by the directors to the proprietors on Wednesday last, stated that the principle of low fixed rates, irrespective of distance had been applied to the carriage and delivery of parcels, not only on their own line, but also on neighboring lines. On Monday last, a meeting of the Trent Valley railway company, Mr. Edward Tootal stated that on the series of lines connecting Manchester and Liverpool with Birmingham and London, combining the London and Birmingham, Grand Junction, Manchester and Birmingham, and Trent Valley lines, in future to be under the management of an amalgamated and consolidated company, under the title of the London and Northwestern railway company, (possessing a capital of 14,000,000 sterling,) all parcels under 12lb. weight would be carried from one end to the other, and to all intermediate places, at the uniform charge of 1*s.*; and that this plan was ultimately to be extended to all the lines between Falmouth and Dover at the south, and Glasgow at the north.'"

"Hitherto parcels were charged various rates, not only according to the distance, but according to the train by which they were despatched, and it was an irksome thing to remember the proper time for sending them at the lower rates, and to calculate the expense according to the distance. This expense was great, that in the case of small parcels, the bulk of which admitted of being separated into several, so as to bring these within the weight required by the post-office regulations, it had become a very general practice to take the channel of the post-office in preference to the direct railway conveyance.

"So far therefore, this is a very great improvement both as regards the uniformity in the charge and the reduction in its amount.—I have not the data with reference to parcels requisite for the formation of tables similar to those previously submitted with reference to other kinds of traffic; but in the absence of these, I would simply refer to the great experiment of post-office reform, and the success of the Metropolitan Parcel Delivery companies, to support my belief that such an arrangement, if it extended the reduction still further to 6*d.* per parcel, or even to 3*d.*, would prove equally if not more remunerative.

"Viewing the question of the delivery of parcels as respects regularity and economy, it is probable that the postoffice authorities, by having the distributary apparatus ready at their hands, and already adapted for this special service, could accommodate the public at rates lower than separate companies, all requiring to incur the expense of separate management. It behoves the companies therefore, if they wish to retain this source of traffic under their own control, without any intermediate agency, to make the charges so low that there shall arise no public or general desire that it should be confided to the postoffice.

To be Continued.

* "Morning Chronicle," 11th March, 1846.

Miscellaneous Items.

The first annual report of the directors of the Northern railroad—the railroad from Concord to the western bank of the Connecticut river, near the mouth of White river—has just been published. The route is 63 miles in length, and the maximum grade is 50 feet to the mile. The grading, masonry and bridging was let out last autumn in ten or twelve different contracts. Considerable progress has been made in the work, and at this time about 1,200 hands are employed upon the whole line. It is expected that the lower 18 miles—from Concord—will be completed this year. Three assessments (amounting to about 25 per cent. of the capital, say $475,000) have been levied, and for the most part paid in.

Hartford and Farmington Valley Railroad. The Hartford people are now moving for the construction of a railroad from that city to Farmington valley. The plan is, to use the Hartford and New Haven railroad for about 7 miles, and thence construct an offset to Plainville, or Bristol basin, on the Farmington canal. The length of new road required to be made, is only about 7 miles, and the estimated cost $150,000 or $200,000. The whole distance from Hartford to Plainville, by railroad, will thus be about 14 miles; while from New Haven to Plainville, is about 25 miles.—Such being the case, a writer in the Hartford Times calculates that even if a railroad should be constructed along the line of the canal from New Haven to Plainville, and thence northwesterly to Collinsville, as proposed, Hartford would have the best of the bargain. Or, to use his own language, the construction of 7 miles of railroad as above, "will restore and forever place in our hands the command of the extensive and valuable commerce of the towns of the Farmington river valley." If however New Haven is willing to take her chance in the game, what should prevent Hartford and New Haven from uniting for the construction of the road from Plainville to Collinsville, and perhaps eventually to Pittsfield, Mass.—*Jour. Com.*

The Railroad.—An instalment of $10 per share was yesterday laid by the stockholders of the New Haven canal, for the purpose of commencing the canal railroad.—*Hartford Courier.*

Middletown Bridge.—The common council of the city of Hartford propose that a sum not *exceeding one hundred thousand dollars*, be appropriated for the purpose of defending the rights of Hartford in the matter of this bridge.

The railroad from Pittsfield to North Adams is progressing rapidly. It is expected that the grading will be finished in the month of July.—*Northampton Gazette.*

The work of relaying the track of the Somerville railroad, with the most approved rail, has been commenced, and it will be gradually progressed in according to circumstances, and without interference with the regular travel, until the whole be completed and rendered durable, safe and permanent.—*Newark Advertiser.*

A Philadelphia paper says that two leading contractors called at the exchange on Saturday, and ofiered to construct the whole of the Pennsylvania railroad, with the Portage section as a link, for five and a half millions of dollars!

The wages paid to hands employed at the railroad depot, in Reading, for the last month, amounts to a fraction less than *seventy-five thousand dollars.*

Wilmington, [N. C.] Railroad.—The stockholders of the Wilmington and Raleigh railroad company met on Wednesday last, a majority being present. The president stated that the South Carolina and Georgia roads were willing to join the Wilmington company in furthering the project of continuing the road to the South Carolina railroad, and that should congress sanction the measure, the post master general would advance, in aid of the connecting link, ten year's mail pay of the new road, and one-third of the mail pay, during the same period, of the Wilmington, Charleston, and Georgia roads. This amount would be about $800,000, and would go far towards building the road.—*Charleston News.*

Little Miami Railroad.—There is a rapid increase of business on this road, and eventually it must become the main route of eastern travel from the west and southwest. In a few weeks it will be open to Springfield, the termination of this road where it intersects with the Mad river and lake Erie railroad. The summer arrangement is now completed, connecting at Sandusky city with a daily line of steamboats to Buffalo, so that travellers meet with no detention. Two passenger trains leave Cincinnati daily, one at 9 A. M., and the other at half past 1 P. M. Passengers by the morning train sup and sleep at Columbus, and reach the lake the next afternoon; by the afternoon train, passengers are taken directly through to the lake in 28 hours. The fare through to Sandusky city is $8 00—and to Buffalo, N. Y., $14.—*Cincinnati Gazette.*

The Railroad.—The Survey Commenced. It will be seen from the following announcement made in the Chattanooga Gazette, that the work of surveying the route for the railroad from Chattanooga to Nashville, has been commenced:

Nashville and Chattanooga Railroad.—J. Edgar Thompson, Esq., chief engineer, on the Georgia railroad, has been employed to survey a route for the Nashville and Chattanooga railroad. Mr. Garnett brother of the chief engineer of the Western and Atlantic railroad arrived here a few days ago, and as assistant engineer to Mr. Thompson, immediately commenced a survey. Mr. Thompson himself and another assistant is looked for daily, when the business of surveying the route for a road from this place to Nashville, will be vigorously prosecuted. It is expected that the labor can be performed in six months, so far as surveying and making estimates of the probable cost, etc.

Muscogee Railroad.—The last legislature granted to several persons, citizens of this city and its vicinity, a charter for a railroad, under

the above title, and vesting the stockholders with the authority to construct a road from Columbus, to connect with the Macon railroad at some point, at their discretion, from the city of Macon to Atlanta—the great object in obtaining this charter was to give this city the power to control and prevent the construction of a railroad by way of West Point to Montgomery. It will be recollected that during the session of the legislature the property owners of this city deemed the matter of sufficient importance to send a delegation to Macon to attend a meeting of the stockholders of the Central railroad; and subsequently also sent a delegation to Milledgeville, who in connection with the members from this county might assist in promoting the special object referred to.

It is believed that our members did all that could be done, or that was expected from legislation; and yet, up to the present moment, no step has been taken by our citizens to carry out the objects and purposes contemplated. It is believed that now is a proper time to make an effort, if one is to be made at all; and if those owning property here do not make it, then it cannot be expected that others, having but little interest involved, will do it for them. For the purpose of having some concert of action upon the subject, a meeting of those gentlemen named in the charter is requested at Johnson and Williams' office, on Wednesday morning, at ten o'clock forenoon.

The following are the persons named in the charter: John G. Winter, John Banks, A. H. Flewellen, Jas. M. Chambers, Samuel A. Batley, John H. Howard, Jas. R. Jones, Wm. A. Redd, H. S. Smith, Dan'l McDougald, Hines Holt, G. E. Thomas, Jas. H. Shorter, P. T. Schley.—*Enquirer.*

Erie Railroad.—The earnings of the eastern division of the Erie railroad for the month of June, 1846, were as follows:

From freight, - - - -	$10,433 04
" passengers and mail, -	5,491 85
Total, - - - - -	$15,924 89
Same time last year, -	13,854 05
Increase, - - - - -	$2,070 84
Increase from freight on milk, -	896 99
" " other freight, - -	421 01
" " passengers, - -	842 84
	$2,070 84

Western Railroad.—Its Cost and Value.

34,000 shares at $100, - - -	$3,400,000
Albany bonds, - - - - -	1,000,000
Massachusetts bonds, - - -	4,000,000
	$8,400,000
Value of sinking funds, Dec. 31, '45,	$465,251
Six months interest accrued - -	12,950
Reserved fund of net earnings, -	128,066
4 per cent. dividend, - - -	136,000
Equal to $22 per share, advance,	$774,267

Philadelphia and Reading Railroad during the 3d week of June,

	1844.	1845.	1846.
Receipts,	$11,429 92	25,261 61	52,112 06
Coal, tons,	9,179	22.506	32,022

Dividends.—The Portland, Saco and Portsmouth railroad have declared an annual dividend of 3, and the New Bedford and Taunton of 3 1-2 per cent.

The Morris and Essex railroad co., [N. J.,] have declared a semi-annual dividend of 3 1-2 per cent.

The S. C. railway co., and the Southwestern railroad bank have declared a semi-annual dividend of $2 per share.

The present income of the Western railroad is at the rate of one million of dollars per annum.

Western railroad stock is selling at par.

The Worcester railroad co. have declared a semi-annual dividend of 4 per cent. Receipts for six months ending May 31, $247,785.

Railroad Iron.—The Boston Courier states that the Vermont and Massachusetts railroad company have completed a contract for 1,300 to 1,500 ton of rails at $76 50 per ton, delivered at Charlestown, Massachusetts, duty and freight to be paid by the seller, the buyer to have the advantage of any remission of duty. This is $8 50 less per ton than the price paid by the Northern railroad, and free from any charge for commissions, etc.

The Danville, Pa., Intelligencer says that 796 tons of iron were made at the rolling mill of the Montour iron company during the month of May.

Schuylkill Navigation.—We are informed by an officer of the Schuylkill navigation company that this work is now in a very forward state throughout the line. About one-third of the whole, extending from this city to Royer's Ford, five miles above Phœnixville, is this day open to the trade. The next division, reaching from Royer's Ford to Reading, and connecting with the Union canal, will come into use in about two weeks. The residue of the line is progressing with great vigor, and will be completed in time to have a salutary effect on the price of coal.—*U. S. Gazette.*

Self-Adjusting Railroad Break.—We learn from the Albany Evening Post, that Mr. Erwin Thayer, of Chatham, Columbia county, has invented a self-adjusting break, by means of which it is believed that collisions upon railroads may be almost entirely obviated.—This invention places the whole train under the immediate control of the engineer, who by touching a lever, breaks the speed of each car. Many accidents occur suddenly before the breakman can get to their stations. Mr. Thayer's plan, by arresting the whole train simultaneously, prevents the crushing of cars by running into each other.

If, as is confidently believed this improvement, when fully tested, accomplishes the object for which it is designed, the liability to accidents will be greatly diminished.

☞ The following is a statement of the magnetic telegraphic lines now in operation, or being constructed:

	Miles.
New York and Boston, complete	265
Jersey city to Washington, do	250
Albany to Rochester, do	250
Rochester to Buffalo, to be completed in 10 days.	100
New York to Albany, via Poughkeepsie, Troy, etc., to be completed July 15th	173
Troy to Saratoga, to be completed July 10th	33
Oswego to Syracuse, do	38
Lockport to Buffalo, do	26
Ithaca to Auburn, to be completed July 4	45
Boston to Lowell, complete	25
Boston to Portland, to be completed in 60 days.	100
Philadelphia to Harrisburg, not complete	98
Total	1,403
Total in operation	961
To be in operation before Sept. 1st	1,403

The great southern line to New Orleans will probably be in operation by the middle of October.

Americans in Russia.—Col. Todd informs us that the grading and working on the entire railroad line from St. Petersburgh to Warsaw, (440 miles,) was given to American contractors. This contract amounts to four and a half millions of dollars, and was given to American contractors in the face of the competition of all Europe, without security.—*Cincinnati Chron.*

The Isthmus of Panama.—The engineers dispatched by the French government to take the requisite surveys for the projected canal across the Isthmus which is to join the two oceans, are stated in accounts from thence to have successfully accomplished their mission. The preferable point for the end of the canal on the Pacific side was selected at Vaca de Monte, a few miles west of the city of Panama, in the valley of the Calmito. On the Atlantic side, the bay of Leinon was fixed upon as affording superior conveniences for shipping to the port of Chrages. The total cost of construction of the canal was estimated at 124,000,000 francs, or say five millions sterling. The total length would be 76¼ kilometres. There would be the necessity for cutting an immense tunnel, which, for shipping, would form an important part of the estimated expense. The depth of the canal would be about seven yards, the width of the bottom twenty yards, and on the surface, forty-five yards.

Notice to Contractors.

We desire to call the attention of contractors to the notice of the Camden branch railroad, in this number. It will be seen that the company propose depositing profiles in this office for the convenience of contractors residing at the north.

This is an arrangement worthy of the attention of railroad companies—as by means of it competition may be obtained from those contractors who might not find it convenient to take a journey of 500 or 1000 miles to examine the drawings upon which they form their estimates.

English Iron Trade.

FROM LONDON MINING JOURNAL,

JUNE 12, 1846.

	£.	s.	£.	s.	d.
Bar *a* Wales—ton	0	0	8	0	0
" London	0	0	9	0	0
Nail rods	0	0	10	0	0
Hoop (staf.)	11	0	11	5	0
Sheet	0	0	12	5	0
Bars	10	10	11	0	0
Rails, average	9	10	10	0	0
Welsh cold blast foundrey pig	4	5	5	0	0
Scotch pig *b* Clyde	3	7 6	3	10	0
Russian, CCND *c*	0	0	0	0	0
" PSI	0	0	0	0	0
" Gourieff	14	5	14	10	0
" Archangel	0	0	13	12	6
Swedish *d*, on the spot	0	0	11	10	0
" Steel, fagt	0	0	15	5	0
kegs *e*	0	0	14	10	0

From our correspondent.

Iron steady at quotations, with a moderate demand for Welsh and Staffordshire. In Scotch pigs very little export business doing since last Mining Journal, but holders are firm. Swedish and Russian are not in request.

Communicated by Messrs. Whitcomb & Barton.

English iron continues firm, but transactions have been rather limited. Scotch pig iron is not quite so good as last week, although there is no material alteration for No. 1. For assorted numbers—1, 2 and 3—we quote the price 67*s.* 6*d.*

From a correspondent.

English iron has undergone no change during last week. Scotch pig has been in active demand at 67*s.* 6*d.* per ton for mixed numbers, delivered at Glasgow: Swedish iron and steel continue dull of sale.

Glasgow Pig Iron Trade.—June 5.—There has been a continuation of the quietness noticed last week, and the sales made have been at slightly easier terms. We quote 65*s.* for No. 3; 67 to 68*s.* for mixed numbers; 68 to 70*s.* for No. 1—cash, free on board. The shipments during the month of May were larger than ever known in any one month; and as they are still continuing unabated, the decrease of stock will tend to give a firmness to the market.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, July 11, 1846.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York.

PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

28tf J. BALL & CO.

THE RAILROAD JOURNAL will hereafter be published *simultaneously* in NEW YORK and PHILADELPHIA. The editorial department will as heretofore, be under thr direction of the subscriber, aided by his former associate Mr. George C. Schaeffer, and other gentlemen of ability connected with the profession—and renewed efforts will be made to render it *more* worthy of the rapidly increasing support which it is now receiving.

Engravings and illustrations will be more frequently given, and expensive maps will be occasionally prepared, showing the progress of the railway system, one of which, showing the proposed route of steam communication from China, across the isthmus, and through the United States, to England, by Edward McGeachy, Esq., of Jamaica, is now in the hands of the artist, and will be ready in a few weeks; and others will follow.

☞ The office in NEW YORK will remain for the present, at 23 Chambers street, and be in charge of Mr. Egbert Hedge, long connected with the work—who is authorized to transact business for me.

☞ The office in PHILADELPHIA will be at the FRANKLIN HOUSE, 105 Chestnut street, under the direction of the editor and proprietor, where all *letters* and *communications* by mail, and all *exchange papers* and *periodicals* may be hereafter addressed to

D. K. MINOR.

☞ The editor of the Railroad Journal presents his compliments to his numerous subscribers and friends and assures them that he will be always gratified to see them at his new office and home, the FRANKLIN HOUSE, late SANDERSON'S, 105 Chestnut street, Philadelphia. He will be found *at home*.

We give below the report of the Buffalo and Niagara falls railroad, which we have just received.—It will be seen by a comparison with the report of last year, [R. R. J. 1842, p. 413] that the business of this company has increased very much, and that its prospects are fair for a continued increase.

This company has relaid its track is now provided with sufficient machinery for its present trade. The proceeds of the sale of the old iron this and last year, show that the iron has not vanished into "thin air."

We commend the arrangement of items of expense which while not embracing many heads, contains a very excellent classification. The details included under each head are given at length in the report of last year.

The board of directors of the Buffalo and Niagara Falls railroad company, respectfully report to stockholders, that the operationa of the road—during the fiscal year just ended give evidence of increased prosperity over last year, as will be seen by the following statement of receipts from passengers, etc., between 1st June, 1845, and 31st May, 1846, viz:

Received from passenger earnings		$27,232 28
" mail, extra baggage, etc..		3,375 77
		$30,608 05
Deduct—repairs and improvements of cars and machinery	$2,870 06	
Contingent expenses..	1,148 19	
Repairs railroad and superstructure	2,039 00	
Fuel	1,259 14	
Salaries and clerk hire	2,348 43	
Running expenses	3,224 56	
Taxes rent	870 52	
Oil	362 93	
Horse power	396 96	
Printing and advertising	208 40	
Stationery	40 36	
Office expenses	33 18	
Repairs of building..	10 47	
	14,812 23	
Interest on funded debt.	1,273 01	
		16,085 24
Net earnings		$14,522 81

After deducting interest and all expenses; equal to 7⅓ per cent. upon the amount of stock issued, amounting to the sum of $198,558 58

From these net earnings the board of directors declared and paid a dividend on the 10th December last, of 3 per cent, and a second one is now declared, payable 10th July, at the bank of the state of New York, of 3 per, cent., making dividends for the fiscal year of $8 per share, or 6 per cent. per annum on the par value of the stock.

The receipts from other sources than those named, but mainly from sales of the old rails (which were taken up last year and replaced by new rails) amounted to $7,880 67; which has been mainly expended in the permanent improvement and completion of the superstructure and road bed.

A new engine house built of stone, as also a turn table has been erected at Niagara Falls during the past year, at a cost of $900—in lieu of a wooden building which was considered unsuited for the purpose.

In view of the excellent condition of the road bed and superstructure, the effective state of the three engines, passenger and freight cars, and the prospects for the years travel over the road, the board of directors anticipate a profitable result from the operations of the ensuing year, and while the current expenses of running will be decreased, there are reasonable grounds for believing that the gross receipts will exceed those of last year.

By order of the board of directors,

W. A. BIRD, Treasurer.
ALBERT H. TRACY, President.

Commutation.

We are glad to find that the New York and Harlem has advertised to commute. We rejoice for two reasons: first, because we consider commutation to be the life and soul of railways from large cities—and, secondly, because the refusal of commutation upon this road has been held up as evidence that *all* railroads had refused commutation. The only other railroad actually refusing—until its recent *quasi* commutation, was the *Long Island*, and of course the example of the Harlem was quoted as evidence, and vice versa.

We are sorry, however, that the Harlem company have not made a more liberal offer than that advertised, $90 per year to White Plains—as they have to induce residence along the line, under several disadvantages—their road being none of the best. We give this company credit, however, for frequent trains, and an evident disposition to accommodate the public. As we have said before, we are glad of this beginning, and soon hope to see better things.

Official Report of the Railway Department of the Board of Trade.

The reports of the board of trade upon accidents and general management, are valuable for several reasons—the information upon which they are founded is official, while the measures proposed or recommended to the various railway companies are without the sanction of law—and are therefore generally well considered, and founded upon good reasoning. If this were not the case, little or no attention would be paid to the advice of the board, the members of which would hardly venture to render themselves ridiculous by suggestions to which the good sense of directors as well as of the community would not readily assent.

There are many valuable lessons to be drawn from this report—lessons unfortunately not easily learned by those who look only to the balance sheet—and for whom there is no tribunal in our country, except that most ill-regulated one, public opinion.

Of the causes of accident mentioned, two or three are particularly worthy of notice. First, imperfect signals. The great amount of traffic upon the English roads has led to care in this respect, far beyond what is seen in this country. Still we find that imperfect signals have caused several collisions, and suggestions are given for the remedy of the evil.—We shall, in another number, enter somewhat into detail upon this subject, and furnish our readers with a figure of the most complete signal in use on the English roads.

The danger arising from improper speed in descending grades, is caused by the ignorance of new engine drivers—the board has recommended posts

marking the terminations of the various grades, and indicating the slope.

The neglect or recklessness of enginemen or conductors has been the cause of many accidents—this is not to be wondered at, when we remember that the demand is increasing far more rapidly than the supply by proper means. The acknowledged good character and carefulness of old hands is thrown into disrepute by the misconduct of ignorant and incompetent pretenders.

One thing more is worthy of remark. During the year 1844, and the first six months of 1845, 12 persons were killed, for over 47 millions of passengers carried—being about 1 in 4 millions. The number in any way wounded being 116, or about 1 in half a million. What mode of travelling can show a degree of safety at all approaching this?

"My Lords—The duties imposed on the railway department last year, in respect of the several railway projects upon which the department was called upon to report to parliament, were so onerous and imperative as entirely to occupy the time and attention of the officers, and to prevent them from presenting a report similar to those which, during previous years, they had been in the habit of submitting to your lordships. The department having however, in a great measure, resumed its former functions, and being relieved from the duties referred to, we have been able to prepare, and beg to lay before your lordships, the following report, embracing the occurrences of the years 1844 and 1845.

"[The tables of statistics that follow show the number and nature of accidents on railways attended with personal injury, which have been reported to the department under the provisions of the act 3 and 4 vict. c. 97, for regulating railways.]

Analysis of Accidents.—In the year 1844, 10 persons were killed, 6 of whom were passengers, and 74 more or less injured, 64 of whom were passengers, by accidents in rail way travelling, arising from causes beyond the control of passengers; 7 passengers were killed, and 9 injured, owing to their own negligence or misconduct: of the companie's servants, 33 were killed and 28 injured, under circumstances not involving danger to other portions of the public; and of persons who were not servants to the railway companies, but principally trespassers, 34 were killed and 17 injured, under circumstances not involving danger to passengers.

The foregoing summary of the accidents which occurred in 1845, shows that 19 persons were killed, 4 of whom were passengers; and 101, 82 of whom were passengers injured in a greater or less degree, the causes of the accident being beyond the control of passengers; that 9 passengers were killed and 10 injured, owing to their own neglect or ill conduct; that 36 servants of the companies were killed, and 24 injured, under circumstances not attended with danger to other portions of the public; and that 45 persons other than servants of the companies were killed, and 9 injured, under circumstances not involving danger to passengers.

Except in cases of accident which ensued from causes manifestly beyond the power of the railway companies to control, or to foresee, a strict investigation was made in every case, and a detailed report of the attending circumstances forwarded to your lordships by the inspector general. These reports will be found in the appendix.

Proportion of Accidents to the number of Travellers.—In the reports which were submitted for the years 1842 and 1843, we stated our satisfaction in being able to direct attention to the then continued and progressive decrease in the number of accidents which occurred on railways. The actual number of accidents in the years 1844 and 1845 are greater than they were in previous years; but the real danger arising from railway travelling can only be appreciated when the number of accidents shall be considered in connection with the additional amount of miles of new railways which have been opened, and the enormous augmentation of railway travellers. For this purpose the following table has been made. It includes the years 1841, 1842, 1843, 1844 and the first half of 1845; the last half of 1845 is not included, in consequence of the statistical returns for that period not having yet been received from the railway companies by the board of trade.

Years.	No. of accidents.	No. of persons injured.			Number of miles of railway open.	Total number of passengers carried.	Proportion of the number of persons injured to the total number of passengers carried.
		Killed.	Injured, not fatally.	Total.			
Last 5 months of 1840	28	22	131	153	1,330¼	6,029,866	1 in 30,410
1841	29	24	72	96	1,556¼	20,449,754	1 in 213,018
1842	10	5	14	19	1,717¼	21,358,445	1 in 1,124,128
1843	5	3	3	6	1,798¼	25,572,525	1 in 4,262,087
1844	34	10	74	84	1,912¼	30,363,052	1 in 456,702
1845 first six months	15	2	30	32	2,118¼	16,720,550	1 in 522,517

Observations thereon.—The causes of the accidents recorded in the foregoing tables have been inserted therein, according to the statements made in the reports of the railway companies, who have not always had time to investigate them fully, when required to make their reports; and whose opinion, as to the causes at that time, somewhat differed from those subsequently formed by the inspector general or assistant inspector of railways, after a careful personal inquiry into the circumstances, upon whose reports, therefore, the following general observations have been founded, without further reference to the discrepancies alluded to.

One fatal accident was caused on the Eastern Counties railway, near Chelmsford, on the 29th of January, 1844, by the neglect of some person in the contractor's employment, who left a moveable cross-rail, from the sliding into a ballast-hole, lying upon the permanent up-line of rails, by which the engine and tender and one cattle truck of a goods train were thrown off, and ran into some rough ground, upon which they overset, and the engineman and stoker lost their lives. After having received the report of the inquiry into this accident, considering it dangerous and improper to use contractor's points, viz. shifting rails and cross rails, in connection with a permanent line when opened for public traffic, your lordships addressed a circular letter to railway companies, requesting to be informed whether this practice prevailed on their respective railways; and if so, recommending that it should be discontinued. By their answers it appeared that they were generally aware of the danger of this practice, and had of their own accord either put a stop to it, or would do so as soon as their new lines or extensions were ready to be opened.

Accidents by Collision caused by Error of Judgement.—Of the accidents by collision recorded in class No. 1, in which the public are most interested, one was caused on the Nottingham branch of the Midland Counties railway, on the 2nd of November, 1844, by the mistaken zeal of the station master at Nottingham; and the other on the South Eastern railway, on the 28th of July, 1845, by the officiousness of the head porter at Tonbridge; both acting without reflection or judgment, and both assuming the power of giving orders to enginemen, which they had no right to do, which led to collisions, one of a fatal, and both of a very serious nature, that could not possibly have happened without their interference.

Accidents caused by Imperfect Arrangements.—Defective Signals.—Imperfect arrangements on the part of some railway companies, and amongst others the exclusive use of hand-lamps, and in one case of a hand-bell by day, and the use of hand-lamps by night, at stopping stations and junctions of railways, have caused or contributed to several railway collisions; and we beg to suggest that these, though proper aids, ought not to supersede the use of larger and more conspicuous signals by day and of more powerful lamps by night, elevated so high as not to be overlooked or confounded with any other objects by day, or other lights by night, without extreme neglect. In stations, and at junctions concealed from view on one or both sides by curves in cuttings, the want of elevated signals has been felt, and from the reports on some of the collisions will appear to have been partly the cause of them. Recently the South Eastern railway company have established signals of this description at all their stations and junctions, they having formerly been confined to some of the principal stations only. This example will, we trust, be followed by companies which are still deficient in this respect; and here we may remark, that it appears desirable that all railway companies should assimilate their signals, in order that enginemen, changing the service of one company for that of another, may not be perplexed by discordant or contrary systems.

Accidents from Imprudent Speed in Descending Gradients.—One of the accidents that occurred on the Eastern Counties railway, by an engine running off the rails, on the 4th of August last, near Chesterford, having been at first ascribed to an improper rate of speed, when descending a gradient on a new part of that line, your lordships were pleased to suggest to the Eastern Counties

and Norfolk railway companies the propriety of causing every change of gradient to be marked in a conspicuous manner, by a post and two arms, upon the latter of which the levels or rates of inclination should be described, and the length of each noted. This system, which had previously been adopted by the Midland and several other railway companies of their own accord, was promptly complied with by those two companies; and it appears to us desirable that the plan should be made general, because the gradients of a railway, though well known to enginemen long employed on any particular line, cannot be judged of by the eye; and this system which therefore, is not only useful to new enginemen, but acceptable to passengers, may tend to prevent accidents.

Accidents caused by Recklessness or Neglect; and Observations on Slips, which have rendered it necessary that the Up and Down Trains of Railways should use the same Line of Rails for the time being.—Several of the collisions of class No. 1 are attributable to the reckless driving of enginemen. Though perfectly aware of the fatal consequences attendant on over fast driving, or of otherwise neglecting the rules and regulations laid down for their guidance, some of the drivers and stokers of locomotive engines appear to have become so habituated to the perils of their calling, as at times to attempt a hazardous rate of speed, to neglect to keep a constant or careful look out, or to omit the precautions, upon the observance of which their own lives and those of the persons committed to their charge depend. Accidents from this cause have been more frequent during the last eight months of 1845 than at any former period—when no fewer than fifteen, nearly one-half of the whole number, thus occurred, three of which on the Eastern Counties railway happened in the short space of twenty-two days; viz., on the 18 of October and 9th of November. In reference to this subject, it may be observed that the demand for experienced enginemen far exceeds the supply, so that railway companies are sometimes forced into the alternative of taking into their employment persons of whose merit they are not perfectly assured, or of ceasing to run their engines, and for the same reason, the mere dismissal of men from a railway had ceased to be a punishment; so that, whenever persons or property have been seriously injured through such rashness or neglect, the prosecution of the enginemen in a court of law appears to be the only check. At the same time, it is due to this valuable class of men to state that as a body, they are attentive, sober and intelligent; that they have generally evinced intrepidity, presence of mind, and judgement, under circumstances of danger and difficulty, and that on long established and well regulated railways, the proportion of accidents that can be ascribed to their misconduct or neglect has been altogether insignificant.

Though the railways of the kingdom, in general, have not been materially injured by heavy rains or frosts during the period included in our present report, yet partial slips have occurred from time to time on several, both in cuttings and embankments, which have rendered one line of rails impassable for the time being, and required the other to be travelled over slowly and with caution; and amongst the slips occasioned by the continued wet weather during the last 4 months of 1845, one of a most formidable character occurred at Morder Carrs, on the Newcastle and Darlington railway, where one line of rails was entirely swallowed up in a bog, and the other so much deranged, that for some time engines could not pass over it, and the carriages both of up and down trains were pushed over by laborers employed at the spot. The original lines of rails broken up or injured by this slip are now being permanently restored in a judicious and efficient manner by the engineers of the company, who in the mean time have provided for the safe passing of trains by a temporary line of rails in lieu of that which was the most injured. None of the slips alluded to caused any injury to persons, though it was necessary to use the same line both for the up and down trains on those railways where they took place—a more common occurrence than is generally supposed. Unless some casuality should be caused by, such an occurrence is seldom or never made known to the public, nor to this department, except when land beyond the company's boundary is required in consequence. We consider it desirable that for the future, official reports of all slips causing partial obstruction of one or both lines of rails whether attended with injury to persons or not, should be made by all railway companies to this department, as they are by some; and also, that the period of forwarding reports of accidents, already required by act of parliament, should be diminished from 48 to 24 hours; in many cases, the first intelligence received of such accidents has been not by official communication, but by the perusal of articles in the newspapers. Some railway companies have voluntarily adopted this practice, by forwarding reports of accidents as soon as they themselves were informed of them.

Extension of the Electric Telegraph on the Railways in England.—Important advantages of this Invention.—The electric telegraph, which was adopted only on the Blackwall railway, and on the portion of the Great Western railway from London to Slough, at the period of our last report, has since been established on the whole of the South Western railway, and on the South Eastern and its branches, as well as on a considerable part of the London and Birmingham line, and is either in progress or has been ordered on others, such as the Eastern Counties, Midland railway, etc., so that electro-telegraphic signals may now be made from London to Gosport, Southampton, Dover, Maidstone, and Canterbury, and in a short time the same system will be extended to Norwich and Yarmouth, and probably, also, from London to Liverpool, Manchester, Leeds, Hull and Newcastle, where the completion of a gap in the connecting chain, of about 20 miles only, between Blisworth and Rugby, remains as yet undetermined. This admirable invention, by which intelligence may be communicated almost instantaneously between the most distant stations at all hours of the day and night, is calculated no less to promote the public interest than the public safety, by preventing accidents through collision on railways under unforseen circumstances, as we believe it has already done.

The Epsom Atmospheric Line.—Workmen are employed at the New Cross tation, Kent road, in forming a cutting alongside the Croydon line, to form the above line, and in making an archway under the road, instead of a brick arch. The roadway is excavated, and the crown formed of massy iron girders, covered with large plates of the same metal.—The cutting a little beyond is through a very high hill. Several houses, and a great portion of a large nursery ground, will be cleared away to make room. The valley was formerly the bed of a small river, which was turned to form the Croydon line.

Mathematics as a Branch of Professional Study.

(Continued from page 422.)

Geometry Studied as a Rational Science.

The two classes of propositions which occur in the works of geometry generally, are sufficiently well marked in their characters to create no difficulty in discriminating them at a glance. The *problem* was, however, the earliest class of proposition, and originated in those *wants* of mankind, which required some particular processes to be performed; and the *theorem* would first take its rise from special observations upon relative positions of the lines employed in the construction of a problem; and, would, in fact, be a mere induction, such as we have in a former number of this series stated to be the ordinary mental habit of practical draughtsmen. That the Greeks obtained some crude notions of practical geometry from the Egyptians seems to be admitted on all hands, and Sir J. Gardner Wilkinson has insisted, somewhat strenuously, that the Egyptians possessed a profound knowledge of rational geometry. How far the worthy knight is himself competent to decide in an inquiry like this, is, however, a question that should be settled beforehand; and even if his own knowledge be admitted, (which it is not) there would still be wanting other proofs than the *scrawls* which he found in the catacombs and ruins, to show that the age of the Pharaohs was in geometry anything less empirical than the practical geometry of our own day. The subtile and analysing mind of the Greek appears to be the only one of ancient times that could grasp the abstract conception of space, and the principles which govern demonstration. Thus would arise, and thus did arise, the second form of proposition, the *theorem*, in its complete state as we now possess it. Our knowledge of the properties of figured space is more extensive than that of Euclid—especially as regards space of three dimensions—but our mode of investigating these properties, is not in any single particular superior to, or even different from, that which was employed in the school of Plato. Of course we are not here speaking of the application

of algebra to geometrical investigation; but even were we to take this into consideration, (which we shall do hereafter) it is very questionable whether, in reference to the class of readers to whom we especially address ourselves, the algebraic mode of investigation be not, *in practice*, inferior to the geometrical. At any rate, the discovery of the one pervading principle of geometrical demonstration is the parent of all the practical and theoretical knowledge of our times; and such is the law imposed upon the human mind by HIM who created it, that by no other means than this shall any man acquire a niche in the historic pantheon of geometrical discovery—or even become capable of efficiently and safely using the discoveries of others.

It is remarkable that the form of the proposition which was the latest discovered is the simplest in its character. The *theorem* alleges, that *if* certain geometrical magnitudes exist under specified relations, *then* a certain other specified relation will also inevitably and universally exist among those magnitudes.* The existing magnitudes and relations constitute the "hypothesis of the theorem;" and the stated consequence of the hypothesis is variously termed the "affirmation," "property," or "conclusion."

When the demonstration comes to be required, the general process is similar to that described in our last number; but there are classes of property that do not admit of the *direct* application of the theorems and axioms which can be brought to bear upon the proof, without at least greatly extending the number and complexity of the axioms, so as even to risk contradictions among them. The difficulty is avoided by proving that while the hypothesis is such as to impose *some relation* between the magnitudes under consideration, that relation *can be no other than that which is affirmed in the proposition.* The demonstration then proceeds to assume that a relation different from that which has been assigned, exists; and taking this as a truth, cotemporaneously with the hypothesis, a series of inevitable consequences are deduced, till we arrive at a final one which admits of comparison with some part of the hypothesis.—If that final conclusion be incompatible with the hypothesis, the assumption which led to it must be erroneous; and hence it is erroneous to suppose the proposition itself to be other than true—or shaping the conclusion a little differently, it follows that the theorem, as enunciated, is true.

Euclid's first use of this method is in book I. prop. 4; where the absurdity to which the contrary conclusion is reduced, is, that two straight lines would inclose a space if the proposition were not universally and inevitably true. We meet with it again in props. 6, 8, 9, 11, (cor.) 14, 19, 25, 26, 27 and 29; while from the second book it is entirely absent. In third it reappears in props. 1, 2, 4, 5, 6, 9, 10, 11, 12, 13, 16, 18, 19, 23 and 27; while in the fourth again not a trace of it is found. The peculiarly happy and refined definition of proportional magnitudes in the fifth book enables Euclid generally to construct his argument in a direct form; but still where it becomes necessary to use the indirect mode of demonstration, he makes no scruple about doing so—as is evinced by his 9th proposition of that book. The sixth book, too, is almost free from the *reductio ad absurdum*—but in the eleventh and twelfth, especially the former, it is found to be very freely used. In all cases, however, it is only employed of necessity, never from choice; and it will be apparent upon looking over the subjects of the propositions where it does occur, that this necessity mainly exists for the establishment of the earlier and simpler properties of figures, and becomes unnecessary in the more advanced and recondite series of propositions. Thus, in the first book, it is used to establish the elementary properties of triangles and parallels; in the third, the elementary properties of circles; and in the eleventh, the elementary properties of intersecting lines and planes subjected to assigned hypothesis.

The contemplation of a very few of Euclid's demonstrations which are effected by this method, will render their character perfectly clear, and enable us to dispense with further remarks on the subject.

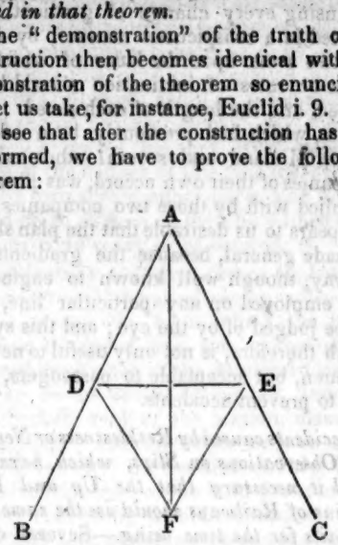
With regard to the *problem*, it will be seen that to merely devise a construction is not enough; we must know that the proposed construction does accurately fulfil the assigned conditions. In certain simple cases it requires little skill beyond the application of the common notions that grow up with us in the present state of society, to perceive how the construction may be effected. In such cases, however, these theorems themselves, (or common notions) are admitted and classed in our minds as facts; and we seldom proceed further in the matter than to *imagine* that we see the proof of the process as we go along. When, however, the problem is more operose and founded on principles more recondite, this resource fails us, and we are compelled either to become mere copyists of the process, or to possess a considerable number of properties of the figure in question, in order to devise the construction which is required. The ordinary constructions of Euclid are not very complex, neither are those which are usually given as exercises; and hence no specific contrivance would be necessary to assist the invention of a well trained mind, in the present supposed stage of a student's reading. The Greeks had, however, invented a mode of *analysis* by which great facility was conferred upon the investigation of methods for constructing intricate and difficult problems. As we shall probably devote one of our papers to this subject hereafter, we shall defer further remark on the method till then.

When the construction has been effected, the matter will stand thus:

The *data* (the things given from which to construct) and the lines, etc., introduced by the actual construction, are to be viewed as the *hypothesis of a theorem;* and the resulting figure, with its relations, as *the truths affirmed in that theorem.*

The "demonstration" of the truth of the construction then becomes identical with the demonstration of the theorem so enunciated.

Let us take, for instance, Euclid i. 9. We here see that after the construction has been performed, we have to prove the following theorem:



If the two lines, AB, AC, which meet in A, two points D and E, equally distant from A be taken, one in each line; and that if on DE an equilateral triangle DFE be constructed, and AF drawn, then AF will bisect the angle BAC.

Although the intervening operations between the data and the final thing required (*quæsitum*) may be ever so numerous, this is still the state of the proposition at which we enter upon the demonstration.

It will very often happen both with the theorem and with the problem when transformed by the addition of its construction to the state of a theorem, that other lines and circles besides those actually existing in the hypothesis (or in the data and construction of the problem) will be required to facilitate the demonstration, and in not a few cases they become *essential.* The choice of these is subject to no rule, nor can any suggestions capable of general applications be offered. In this will often be shown the skill of the geometer as strikingly as in any part of his processes. We see it manifest often in Euclid's Elements—as for instance in i. 5 and 48, in iii. 37, and in iv. 10; but it is in more complex propositions that this kind of invention is most displayed. Every process of this nature should, however, be carefully stored up in the mind of the student; and he will find innumerable fine specimens of it in those older English periodicals which have been principally devoted to geometry.

Were we addressing those whose sole object in the study of geometry was intellectual exercise, we should strenuously urge upon them a considerable portion of *independent practice,* both in construction and demonstration; but upon the readers whom we actually and professedly address, we are bound to urge the same course still more strenuously. As well might a painter expect to become eminent from *only looking* at pictures, as a geometer to become capable of independent inquiry by merely reading and studying what others have done. Many collections of exercises, adapted to the student's purpose in

* This is the most frequent form; but it sometimes occurs that the affirmation takes the form of denying that a specified relation can ever exist among them.

a greater or less degree, have been published; but they are not in general so arranged as to afford him convenient practice cotemporaneously with his study of Euclid's text. The edition of Euclid, by Mr. Potts, which we reviewed a short time ago, appears to us well fitted, by its judicious arrangement of the exercises, for this purpose. The reader will gain facility in research, accurate habits and extended knowledge, at the same time. We would warn him, however, against the habit of "peeping into Bland or Cresswell for a hint" on the subject; and urge him to confine himself to his Euclid and the treasured results of his own investigations in all cases. Let him, too, not content himself with merely performing any given problem or demonstrating any given theorem; but rather keep his mind awake to the uses which may be made of the problem, or the other properties that may belong to his figure besides the one which has been enunciated in his theorem. It is this habit of close attention to *all* the properties of a figure, and to their systematic deduction one after another, that constitutes the inventive geometer, and gives such immense power in the application of mathematical science to practical purposes.

We have one remark more to make in connection with this subject. Euclid's geometry was essentially theoretical—the development of geometical facts, not the construction of geometrical problems. Every problem that was solved was one subsidiary to the constructive part of the demonstration of a theorem, such as we have alluded to in a recent pamphlet; and it was only so introduced in order to justify every step of the demonstrative process. If we look at the problems of Euclid merely as practical processes, they are often inferior to others, given by subsequent writers who have had an immediately practical purpose in view. At the same time the great mass of our writers on practical geometry have satisfied themselves with merely copying Euclid's constructions, and adding a few others which the demands of the mere draughtsman rendered imperative. A good and really complete work on practical geometry remains to be written—one in which the most extended and the most refined geometrical research shall be brought to bear on the solution of graphic problems; and one at the same time in which every construction shall be attended by its rigorous demonstration, however recondite may be the principles on which it is founded. As an illustration of what we mean we shall refer to the chapter of geometrical problems in the 12th edition of Hutton, given by Professor Davies, where it will be seen that the problem is constructed irrespective of the place which its demonstration occupies in the range of theoretical geometry. That chapter, however, has upon its face, the marks of hasty composition, and the consequent want of symmetry and completeness, which we could wish had been given to it. Still it is the only work with which we are acquainted, that in any degree approaches to our own view of what such a work should be; and as the author of that chapter has of late years devotedly attached himself to the geometry of engineering, it is much to be desired that he would himself finish the work which he has there begun, and give us such a complete system of practical geometry as should meet our real wants—at the same time attaching to each proposition and to each mode of construction its appropriate demonstration. We have no wish to see a series of mere processes however valuable, obtruded upon the profession, unless accompanied with undeniable demonstrations of the validity of the processes. We have heard, indeed, that Mr. Davies is now employed upon a work on Descriptive Geometry, in which a practical bearing is to be kept in view throughout; and we have no fear of the accuracy of its principles being frittered away in his hands to meet the prevailing taste of our country and our day.—He is too well known as a rigid disciplinarian in pure geometry to create anxiety on this head. Our main fear is the want of sufficient support from the public to encourage him to go to press. Even, however should this support be withheld, we are sure that such a work on plain geometry as we have pointed out, would be encouraged.

A CARD.

TO THE CITIZENS OF NEW YORK.

After a residence of over *twenty-one* years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.

Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and encouraged me on; but more especially to those *few* who so generously sustained me at a period when all was lost, save a determination to succeed.—Here I have labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; *there* I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but "laboring in the vocation" that contributes "the greatest good to the greatest number."

In the "FRANKLIN HOUSE," 105 Chestnut street, Philadelphia, heretofore kept by Messrs. J. M. SANDERSON & SON—my future residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand, and exchange many a kind salutation, with warm and sincere friends.

The house is now undergoing a thorough renovation, and extensive improvements are to be made, by the addition of a convenient and well arranged *ladies ordinary*, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be newly painted throughout, and mainly refurnished, and thus be placed on a footing with the best Hotels in Philadelphia. I shall be aided in its management, by MR. JAMES M. SANDERSON, long favorably known as one of the gentlemanly proprietors of the FRANKLIN HOUSE, and as a caterer unsurpassed in the country; and also by the celebrated *Chef de Cuisine* PELLETIER, who has also been connected with the house during the past four years, and whose superior, as an *artiste* in his line, in this country, *is yet to be found*.

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the FRANKLIN HOUSE, and upon their obedient servant,

D. K. MINOR.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

NOTICE TO CONTRACTORS—SEALED proposals will be received at the office of the South Carolina Railroad Company until the 15th July, 1846, for the construction of the PILE or TRESTLE WORK, on the CAMDEN BRANCH RAILROAD across the Wateree River Swamp, distance to be piled three and three-quarter miles.

Plans and profiles will be exhibited on and after the 1st July, at the Engineer's Office, Camden, S. Carolina, where the requisite information may be procured; and an Assistant Engineer will be at Stateburg, to show the line to those interested.

☞ For the convenience of those who cannot visit S. Carolina at this season, a profile may be seen at the office of the *Railroad Journal*, New York.

The timber will be furnished by the company at one end of the work, or at different points along the line.

The work to be commenced at latest on 1st November, and to be completed ready for the rails in six months.

The piles are expected to be driven by a steam engine, and the company may take one machine off the contractor's hands on the completion of the work.

Persons desirous of undertaking the above work, who may be unknown to the Engineer or Directors of the company, will be required to accompany their proposals with reference as to character and ability to perform the work, and if necessary to give good security.

Proposals will also be received at the same time, for the construction of a bridge across the Wateree River, upon "Burr's" plan, 200 feet in length, and spans not exceeding 100 feet in length, with a sliding draw of fifty feet opening. JOHN M'RAE,
2t27 Engineer Camden Road.

RAILROAD IRON—1700 TONS VERY Best English Rails, ready to be delivered.—These Rails weigh 60 lbs., the lineal Yard, are 3¼ inches deep; 4 inches deep at base; 2½ inches wide at top; 17½ feet long, except one-tenth of 15 and 12½ feet in length.

A first rate Steam Pile Driver built by "*Dunham & Co.*," has never been in use, is in perfect order, and for sale a bargain; also 12 Railway Passenger Cars that have never been used, which will be sold very low. DAVIS, BROOKS & CO.,
June 1. 30 Wall Street.

WILLIAM R. CASEY, Civil Engineer, New York. Address Box 1078, Post-office, New York. 21

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containiug 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.

Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

TO LOCOMOTIVE AND MARINE Engine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1tf

LAP—WELDED

WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1-2 TO 5 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.		CHAINS.		STRENGTH.
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.	Weight per fathom	Diameter of iron	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS. OZ.	LBS.	INCH.	
11	4⅛	13	5	10	24 –	50	15-16	20
13	3½	8	3	8½	16 –	27	11-16	13½
14	3⅛	6	11	7½	12 8	17	9-16	10½
15	2⅞	5	2	6½	9 4	13½	1-2	7½
16	2⅜	4	3	6	8 8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contrats for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.

New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the *double headed* pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard. for sale by

BOORMAN, JOHNSTON & CO.

4t24 119 Greenwich street.

LAWRENCE'S ROSENDALE HYDRAulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:

180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent*,

1y Albany Iron and Nail Works,

CALIGRAPHIC BLACK LEAD PENcil, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experiments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER,

Stationer and Sole Agent,

No. 49 Wall Street.

N. B.—A complete assortment of Steven's *Genuine* Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19tf

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, *Civil Engineer*,

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent*.

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

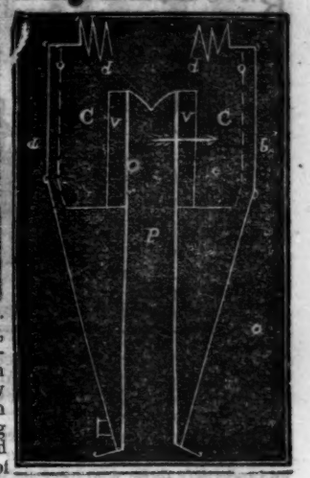
All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent*.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President Wilmington and Raleigh Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

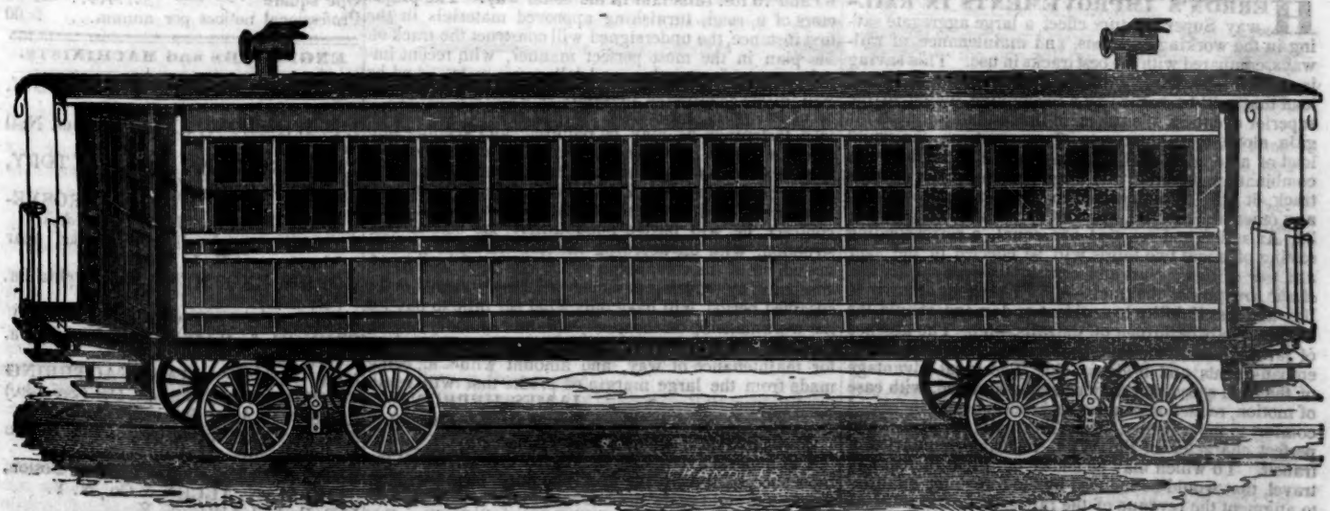
N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

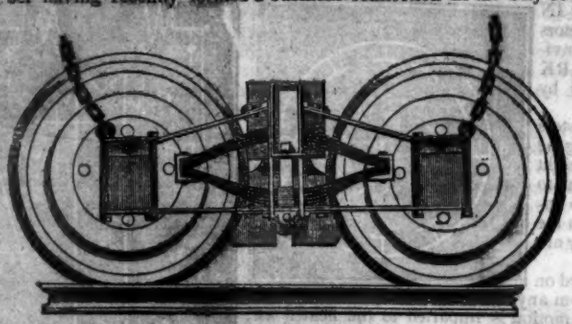
DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minues. 1y1

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIber having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH, Sup't Motive Power.

1y19

HERRON'S PATENT AMERICAN RAILWAY TRACK,

As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILway Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the *wear* and *tear* of the *engines* and *cars*, by the *even surface* and *elastic structure* of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really *permanent* and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from $2,300 to $4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to 60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in *perfect adjustment*, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportrtion, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only $750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 *South Tenth St., Philadelphia.*

* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed $625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1

THE AMERICAN RAILROAD JOURNAL is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

RATES OF ADVERTISING.

One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One columnn " "	3 00
One square " "	1 00
Professional notices per annum	5 00

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N.Y. (*See Adv.*)
J. F. WINSLOW, Albany Iron and Nail Works, Troy, N. Y. (*See Adv.*)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM AND GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
KITE'S Patent Safety Beam. (*See Adv.*)
FRENCH & BAIRD, Philadelphia, Pa. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Company.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
PHŒNIX FOUNDRY, N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works, Stockbridge, Mass.